BY MATT DAMON

A 21st-Century Yurt

My company, Penobscot Home Performance, specializes in energy-efficiency upgrades, usually on older homes. Occasionally, we're called in to insulate and air-seal a new home. But we've never before seen a job like this one: a yurt on a gorgeous piece of land in Blue Hill, Maine, built from a kit supplied by Smiling Wood Yurts (based in Methow Valley, Wash.).

Smiling Wood kits come with a standard insulation package, but in Maine's tough climate, this owner wanted something more robust. When I arrived, the home was framed up, the windows were in, and the board sheathing was installed **(1)**. The owner and her GC were eager to get the shell air-sealed and insulated while we still had nice weather, so they could move ahead and install the roof (standing-seam metal, precut as part of the kit to fit the triangular rafter bays).

We wanted to fill the 2x12 rafter cavities with dense-blown cellulose, but the inside ceiling was 1-inch tongue-and-groove pine—clearly in need of sealing to prevent moisture and air migration. Our solution was to spray an inch of closed-cell foam onto the ceiling from above **(2)**, then apply Pro Clima Solitex Mento vapor-open weather barrier fabric to the top of the rafters and pack the cavities with cellulose.

After making sure the crew was fully protected with fall-arrest gear, we started by taping the joints between the rafters and the ceiling boards using Pro Clima Tescon Vana tape **(3)**, applying the tape upslope along the lower edges of the 19-foot rafters.

The next step was to install the Mento as the roof sheathing. We started with 5-foot-wide Mento, stretched drum-tight and stapled to the face of each rafter, taping any overlapping seams with double-sided Pro Clima Duplex tape. We also taped over all staple lines with Tescon Vana. As we became more proficient, we switched to 10-foot-wide rolls of Mento.

Ventilation air for the roof entered through a screen installed in the eaves and flowed over the Mento up to a vent at the roof peak. Furring in line with the rafters over the Mento created a 3/4-inch air space for airflow—less than I would have liked, but all that the precut roofing panel sizes would allow.

With the Mento in place, we proceeded to dense-blow the spaces **(4)**. The cellulose caused the Mento to bulge up, but we found that we were able to flatten the roof out using the same rollers we use for flattening wall insulation in house retrofits. The R-value for this system calculates out at about R-44.

Matt Damon is co-owner of Penobscot Home Performance, in Bucksport, Maine (penobscothomeperformance.com).

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Photos: Matt Damon/Penobscot Home Performance